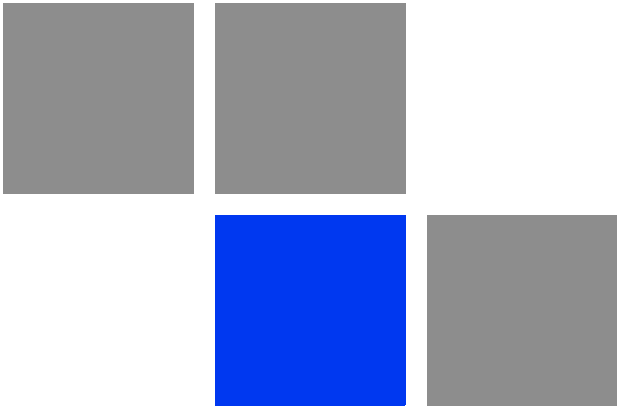
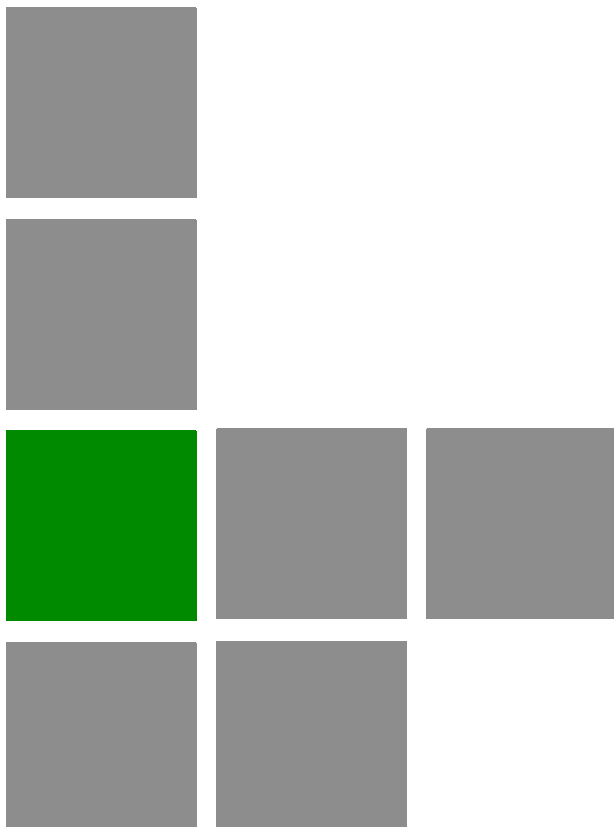




BreezeMAX Si 3000 and BreezeMAX PRO 3000



Product Manual

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Radio Frequency Interference Statement

The **Subscriber Unit** equipment has been tested and found to comply with the limits for a class B digital device, pursuant to ETSI EN 301 489-1 rules and Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment notwithstanding use in commercial, business and industrial environments. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

FCC Radiation Hazard Warning

Indoor CPE - To comply with FCC RF exposure requirements in Section 1.1307 and 2.1091 of FCC Rules, the antenna used for this transmitter must be kept at a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Outdoor CPE - To comply with FCC RF exposure requirements in Section 1.1307 and 2.1091 of FCC Rules, the antenna be used for this transmitter must be fixed-mounted on outdoor permanent structures with a separation distance of at least 120 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

R&TTE Compliance Statement

This equipment complies with the appropriate essential requirements of Article 3 of the R&TTE Directive 1999/5/EC.

Safety Considerations - General

For the following safety considerations, “Instrument” means the BreezeMAX units' components and their cables.

Caution

To avoid electrical shock, do not perform any servicing unless you are qualified to do so.

Line Voltage

Before connecting this instrument to the power line, make sure that the voltage of the power source matches the requirements of the instrument.

Radio

The instrument transmits radio energy during normal operation. To avoid possible harmful exposure to this energy, do not stand or work for extended periods of time in front of its antenna. The long-term characteristics or the possible physiological effects of radio frequency electromagnetic fields have not been yet fully investigated.

Outdoor Units and Antennas Installation and Grounding

Ensure that outdoor units, antennas and supporting structures are properly installed to eliminate any physical hazard to either people or property. Make sure that the installation of the outdoor unit, antenna and cables is performed in accordance with all relevant national and local building and safety codes. Even where grounding is not mandatory according to applicable regulation and national codes, it is highly recommended to ensure that the outdoor unit and the antenna mast (when using external antenna) are grounded and suitable lightning

protection devices are used so as to provide protection against voltage surges and static charges. In any event, Alvarion is not liable for any injury, damage or regulation violations associated with or caused by installation, grounding or lightning protection.

Disposal of Electronic and Electrical Waste



Disposal of Electronic and Electrical Waste

Pursuant to the WEEE EU Directive electronic and electrical waste must not be disposed of with unsorted waste. Please contact your local recycling authority for disposal of this product.

《电子信息产品污染控制管理办法》 (第39号) (又名中国RoHS)

产品内含有害物质揭露表

零部件名称	有害物质项目					
	铅	镉	汞	六价铬	PBB	PBDE
	(Pb)	(Cd)	(Hg)	(Cr ⁶⁺)	(多溴联苯)	(多溴二苯乙醚)
含铜线材	×	○	○	○	○	○
连接器	×	○	○	○	○	○
变压器	×	○	○	○	○	○
陶瓷电容	×	○	○	○	○	○
高温锡材	×	○	○	○	○	○

○：表示此部件使用的所有同类材料中此种有毒或有害物质的含量均低于 SJ/T11363-2006 规定的限制要求。

×：表示此部件使用的至少一种同类材料中，此种有毒或有害物质的含量高于 SJ/T11363-2006 规定的限制要求。

The above table provides information required under the following Chinese legislation:
Management methods for Controlling Pollution by Electronic Information Products(No.39)
(also known as China RoHS)

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1. Overview

The IEEE 802.16e Wave II standard WiMAX-compatible BreezeMAX PRO 3000 CPE and BreezeMAX Si 3000 CPE Subscriber Units (SUs) serve as an efficient platform for a wide range of services, providing basic WiMAX connectivity and bridge functionality.

The BreezeMAX Si 3000 (indoor unit) is available at 2496-2690MHz.

The BreezeMAX PRO 3000 (outdoor unit) is available at 3.3-3.6 GHz and 2.496-2.69GHz bands.

1.1 BreezeMAX Si 3000

The Self Install Si CPE is a compact Subscriber Unit (SU) that is intended for indoor installations.



Figure 1: BreezeMAX Si CPE

1.1.1 Top Panel LEDs

Table 1: Front Panel LED Indicators

Name	Functionality
Power	■ On - Power on ■ Off - Power off
LAN	■ On - Connected ■ Off - Disconnected ■ Blinking - Data transmission

Table 1: Front Panel LED Indicators (Continued)

Name	Functionality
Red ONLY	■ Blinking - Synchronization ■ On - Weak signal (CINR<8dB) ■ Off
Yellow ONLY	■ Blinking - Authentication ■ On - Medium signal strength (8dB<CINR<15dB) ■ Off
Green ONLY	■ Blinking - Synchronization with base station ■ On - Good signal strength (15dB<CINR) ■ Off

**Figure 2: BreezeMAX Si 3000 Front Panel**

1.1.2 Rear Panel

- Power jack: DC 12V / 1.5A
- LAN port: 10/100Base-TX
- Reset button: To reboot the CPE

1.2 BreezeMAX PRO 3000

The PRO 3000 CPE comprises an Outdoor Unit (ODU) and an Indoor Unit (IDU).

The ODU includes the modem, radio, data processing and management components of the SU. It also includes an integral high-gain flat antenna. The ODU connects to the IDU and to the user's equipment through a 10/100BaseT Ethernet port.

The indoor unit is powered from the mains and connects to the ODU via a Category 5E Ethernet cable carrying the Ethernet data between the two units, as

well as power (-54 VDC) and control signals to the ODU and status indications from the ODU.



Figure 3: BreezeMAX PRO 3000

1.3 Specifications

1.3.1 BreezeMAX PRO 3000 CPE Specifications

1.3.1.1 Radio Specifications

Table 2: PRO 3000 CPE Radio Specifications

Item	Details		
General			
Frequency	Band	Frequencies (GHz)	Channel Bandwidth
	2.5 GHz	2.496-2.690	5 / 10 MHz
	3.5 GHz	3.3-3.6	3.5 (Optional)/ 5/ 7/10 MHz
Channel Step Size	In 125kHz steps		
Synchronization	Shall be referenced to the WiMax BTS Timing Module.		
Frequency Accuracy	MRCT Compliant		
Air Interface	IEEE 802.16e WirelessMAN-OFDMA		
Standards compliance	IEEE 802.16e and Standard for Conformance to IEEE Standard (Radio Compliance Test) Wave1/ Wave2		
TDD Duty Cycle (Tx/Rx)	Rx up to 75% , Tx up to 50%		
SISO or MIMO	MIMO (1Tx, 2Rx)		
Regulatory Compliance	Comply with major regional regulatory requirements		
Frame duration	5 msec;		

Table 2: PRO 3000 CPE Radio Specifications (Continued)

Item	Details	
RF Transmitter Specifications		
Maximum output power	2.496 - 2.69 / 2.3 - 2.4 GHz	Typical 27dBm @ (16QAM)
	3.3 - 3.6 GHz	Typical 27dBm @ (16QAM) w/ ETSI Mask
RF dynamic range	45dB minimum	
Transmit Power Control Relative Accuracy	mRCT compliant	
Transmit and Receive Switching Gap	50uS	
RF Receiver Specifications		
Impedance	50 ohms nominal	
Input return loss	10dBi	
RX Sensitivity	Typical 3dB better than mRCT in SISO mode, and 6 dB better in MRC or MIMO mode.	
Adjacent Channel Rejection	Meet mRCT requirement (Typical 3dB better)	
Non-Adjacent Channel Rejection	Meet mRCT requirement (Typical 3dB better)	
Antenna Specifications		
Antenna Polarization Type	Directional Dual Polarization Patch Ant	
Antenna Gain	Typical 15 dBi	
Antenna Connectors	No External ANT Connector / and 2 internal MCX ANT connector	

**IMPORTANT**

The related parameters are all defined at the room temperature condition of 25°C ~ 35°C

1.3.1.2 Power Specification

Table 3: PRO 3100 CPE Power Specification

Item	Details
Power Consumptions	Outdoor CPE: 12.9W Maximum
Power Adapter	Input of 100 VAC - 240 VAC 50 Hz to 60 Hz
Power over Ethernet	48V DC

1.3.1.3 Environmental Specifications

Table 4: PRO 3000 CPE Environmental Specifications

Item	Details
Operating Temperature	-40°C ~ 60°C
Storage Temperature	-40°C ~ 70°C
Operating and Storage Humidity	5%-95%

1.3.1.4 Interface

Table 5: PRO 3000 CPE Interface Specifications

Item	Details
RJ 45	Ethernet connection: 1 RJ 45
Buzzer	Signal Strength

1.3.1.5 Regulatory Specifications

Table 6: PRO 3000 CPE Regulatory Specifications

Standard	Frequency Band
■ EMC: EN 301 489-1/-4 FCC p15	2.5~2.7 GHz 3.4~3.6 GHz
■ Radio: EN 302 326 EN 302 544-2 FCC p27	
■ Safety: EN 60950-1 UL 60950-1	

1.3.1.6 Reliability Specifications

Table 7: PRO 3000 CPE Reliability Specifications

Item	Details
MTBF	The MTBF for CPE is not less than 200,000 hours.

1.3.2 Si 3000 CPE Specifications

1.3.2.1 Radio Specifications

Table 8: Si 3000 CPE Radio Specifications

Item	Details		
General			
Frequency	Band	Frequencies (GHz)	Channel Bandwidth
	2.5 GHz g	2.496-2.690	5 / 10 MHz
Channel Step Size	In 125kHz steps		
Synchronization	Shall be referenced to the WiMax BTS Timing Module.		
Frequency Accuracy	MRCT Compliant		
Air Interface	IEEE 802.16e WirelessMAN-OFDMA		
Standards compliance	IEEE 802.16e and Standard for Conformance to IEEE Standard (Radio Compliance Test) Wave1/ Wave2		
TDD Duty Cycle (Tx/Rx)	Rx up to 75% , Tx up to 50%		
SISO or MIMO	MIMO (1TX, 2RX) / 3.xGHz support 2Tx in future upgrade		
Regulatory Compliance	Comply with major regional regulatory requirements		
Frame duration	5 msec;		
RF Transmitter Specifications			
Maximum output power	2.496 - 2.69	Typical 27dBm @ (16QAM)	
RF dynamic range	45dB minimum		
Transmit Power Control Relative Accuracy	mRCT compliant		
Transmit and Receive Switching Gap	50uS		
RF Receiver Specifications			
Impedance	50 ohms nominal		
Input return loss	10dBi		

Table 8: Si 3000 CPE Radio Specifications (Continued)

Item	Details
RX Sensitivity	Typical 3dB better than mRCT in SISO mode, and 6 dB better in MRC or MIMO mode.
Adjacent Channel Rejection	Meet mRCT requirement (Typical 3dB better)
Non-Adjacent Channel Rejection	Meet mRCT requirement (Typical 3dB better)
Antenna Specifications	
Antenna Polarization Type	Embedded Dipole
Antenna Gain	Typical 5dBi
Antenna Connectors	None. Embedded IPEX

**IMPORTANT**

The related parameters are all defined at the room temperature condition of 25°C ~ 35°C

1.3.2.2 Power Specification

Table 9: Si 3000 CPE Power Specification

Item	Details
Power Consumption	12W Maximum
Power Adapter	Input of 100 VAC - 240 VAC 50 Hz to 60 Hz

1.3.2.3 Environmental Specifications

Table 10: Si 3000 CPE Environmental Specifications

Item	Details
Operating Temperature	0°C ~ 45°C
Storage Temperature	-5°C ~ 70°C
Operating and Storage Humidity	5%-95%

1.3.2.4 Interface

Table 11: Si 3000 CPE Interface Specifications

Item	Details
RJ 45	Ethernet connection: 1 RJ 45

Table 11: Si 3000 CPE Interface Specifications (Continued)

Item	Details
Reset	Signal Button
LEDs	Signal Strength: 3 LEDs
	Power: 1 LED
	LAN: 1 LED

1.3.2.5 Regulatory Specifications

Table 12: Si 3000 CPE Regulatory Specifications

Standard	Frequency Band
■ EMC: EN 301 489-1/-4 FCC p15 ■ Radio: EN 302 326 EN 302 544-2 FCC p27 ■ Safety: EN 60950-1 UL 60950-1	2.5~2.7GHz 3.4~3.6GHz

1.3.2.6 Reliability Specifications

Table 13: Si 3000 CPE Reliability Specifications

Item	Details
MTBF	The MTBF for CPE is not less than 100,000 hours.

2. Installation

2.1 BreezeMAX PRO 3000

2.1.1 Package Content

- BreezeMAX PRO 3000 ODU
- Power Injector - Power Over Ethernet 802.3af compliant with LAN port: 10/100Base-TX
- Crossed Ethernet cable with two RJ-45 connectors for connecting the IDU power injector to a PC/HUB/switch.
- Power Cable
- Sealing cap
- Pole mounting kit (see [Table 15](#))

2.1.2 Additional Installation Requirements

- Indoor-to-outdoor Category 5E PoE Ethernet cable with two shielded RJ-45 connectors (can be ordered separately from Alvarion) and an RJ-45 connectors crimping tool. For details on approved cables and maximum length, refer to [Section 2.1.4](#).
- Mains plug adapter or termination plug (if the power plug on the supplied AC power cord does not fit local power outlets).

2.1.3 Guidelines for Positioning the ODU

This section provides key guidelines for selecting the optimal installation locations for the ODU.



CAUTION

ONLY experienced installation professionals who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate government regulatory authorities should install outdoor units and antennas.

Failure to do so may void the product warranty and may expose the end user or Service Provider to legal and financial liabilities. Alvarion and its resellers or distributors are not liable for injury, damage or regulation violations associated with the installation of Outdoor Units or antennas.

Select the optimal locations for the equipment using the following guidelines:

- The ODU should be mounted on a 1"-4" pole. Its location should enable easy access to the unit and its connectors for installation and testing.
- The higher the placement of the antenna, the better the achievable link quality.
- The antenna should be installed to provide a direct, or near line of sight with the BTS antenna(s). The antenna should be aligned to face the general direction of the BTS.

2.1.4 IDU-ODU Cables



NOTE

The length of the Indoor-to-Outdoor cable should not exceed 90 meters. The length of the Indoor-to-Outdoor cable, together with the length of the Ethernet cable connecting the CPE-IDU-1D to the data equipment, should not exceed 100 meters.

Use only Category 5E PoE Ethernet cables from either Alvarion or any of the approved manufacturers, listed in [Table 14](#) below. Consult with Alvarion's specialists on the suitability of other cables.

Table 14: Approved Category 5E Ethernet Cables

Manufacturer	Part Number
Superior Cables Ltd. www.superior-cables.com	612098
HES Cabling Systems www.hescs.com	H5E-00481
Teldor www.teldor.com	8393204101
Southbay Holdings Limited 11th Fl., 15, Lane 347, Jong Jeng Rd. Shin Juang City, Taipei County Taiwan, R.O.C. Attn: Eva Lin Tel. 886-2-2832 3339 Fax. 886-2-2206 0081 E-mail: eva@south-bay.com.tw	TSM2404A0D

Table 14: Approved Category 5E Ethernet Cables (Continued)

Manufacturer	Part Number
GU-Tech., LLC . - A Member of OVIS GroupTel/Fax : 732 918 8221 Mobile: 718 909 4093 www.OVIS.COM.TW www.GU-TECH.COM	

In case of missing information in the manufacturer's WEB site (product specifications, ordering issues, etc.), it is highly recommended to contact the manufacturer's sales representative directly.

2.1.5 Pole Mounting the ODU

The ODU can be mounted on a 1" to 4" pole using the pole mounting kit supplied with each unit. The pole mounting kit includes the following items:

Table 15: Pole Mounting Kit

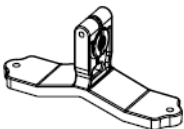
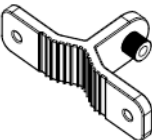
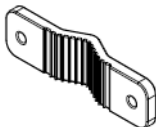
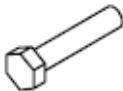
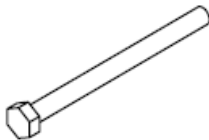
Item No.	Item	Item Description	Qty
1		Bracket	1
2		Clamp	1
3		Clamp	1
4		Hex head M5*16mm bolts	2
5		M5 spring washers	2
6		Hex head M8*40mm bolts	2

Table 15: Pole Mounting Kit (Continued)

Item No.	Item	Item Description	Qty
7		M8 spring washers	5
8		M8 washer	1
9		Hex head M5*35mm bolt	1
10		M8 Hex nuts	3
11		Hex head M8*100mm bolt	2

In the following instructions the item numbers (within the text and in the drawings) refer to the pole mounting kit items listed in [Table 15](#).

- 1 With the connector facing downward, attach the bracket (item 1) to the two designated holes at the rear of the ODU, as shown in [Figure 4](#). Use the two M5*16mm bolts (item 4) and M5 spring washers (item 5). The assembled bracket is shown in [Figure 5](#).

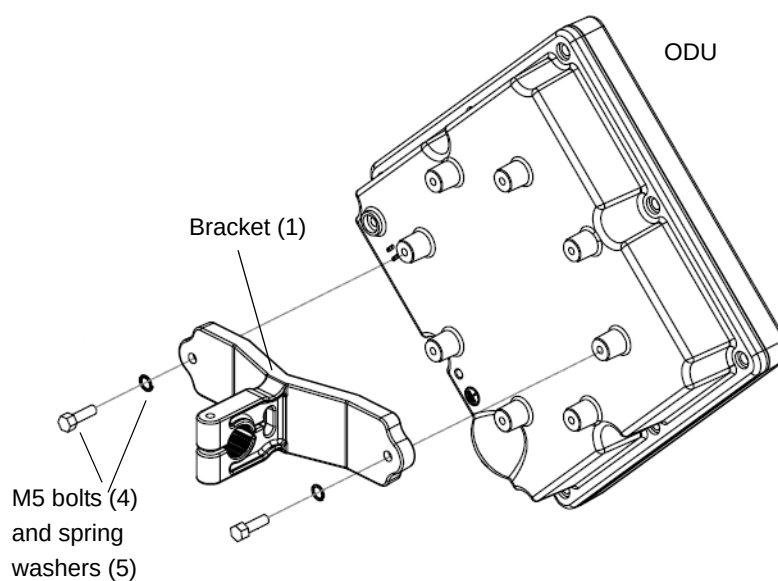


Figure 4: Attaching the Bracket

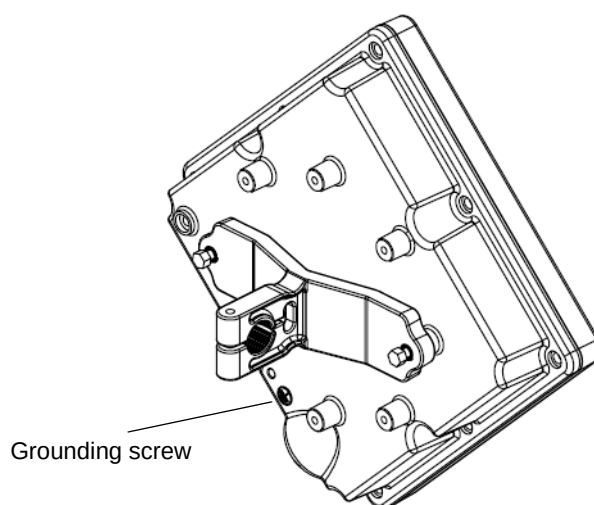


Figure 5: Bracket Assembled on ODU

- 2 Thread the M8*40mm bolt (item 6) through an M8 spring washer (item 7) and an M8 flat washer (item 8) and then through the bracket's hole, as shown in [Figure 6](#).
- 3 Thread the M5*35mm bolt (item 9) through the designated hole in the bracket, as shown in [Figure 6](#).

- 4 Attach the clamp (item 2) to the bracket such that the M8 bolt is threaded through it and tighten using an M8 nut (item 10). Make sure the bracket is secured tightly. The assembled clamp is shown in [Figure 7](#).

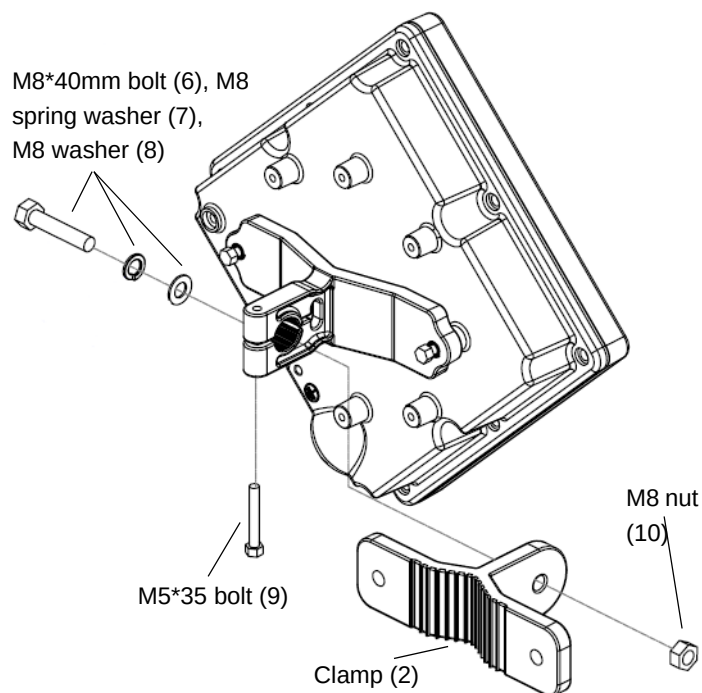


Figure 6: Assembling the Clamp

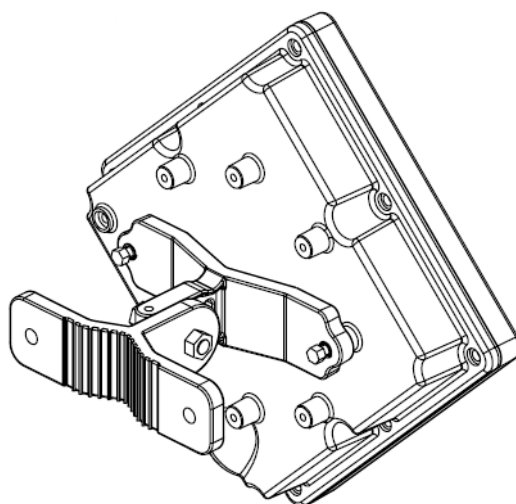


Figure 7: Clamp Assembled on Bracket

- 5 Attach the ODU to a 1"-4" pole. Attach the clamp (item 3) to the other side of the pole. Thread the M8*100mm bolts (item 11) through M8 spring washers (item 7) and through both clamp holes on either side, as shown in [Figure 8](#). Tighten the bolts using the M8 nuts (item 10) and spring washers (item 7).

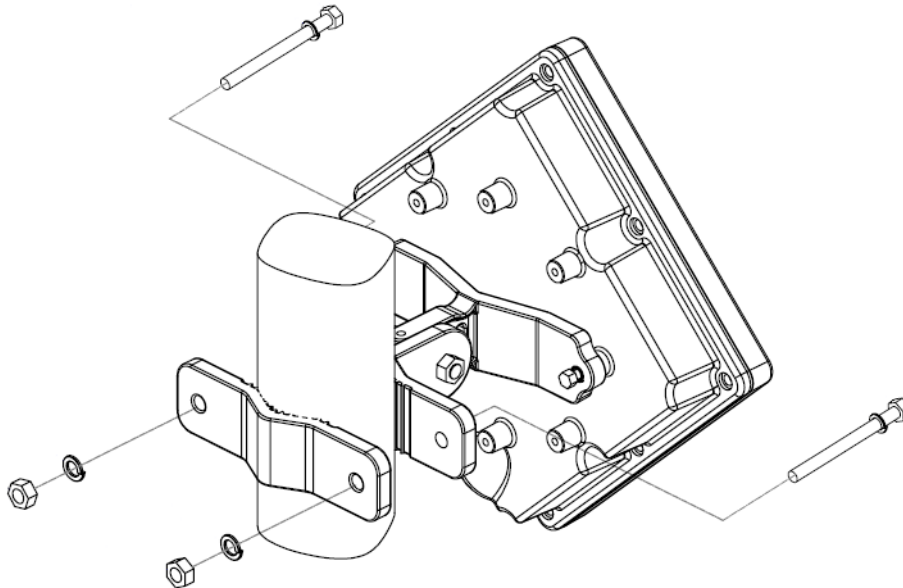


Figure 8: Attaching the ODU to a Pole

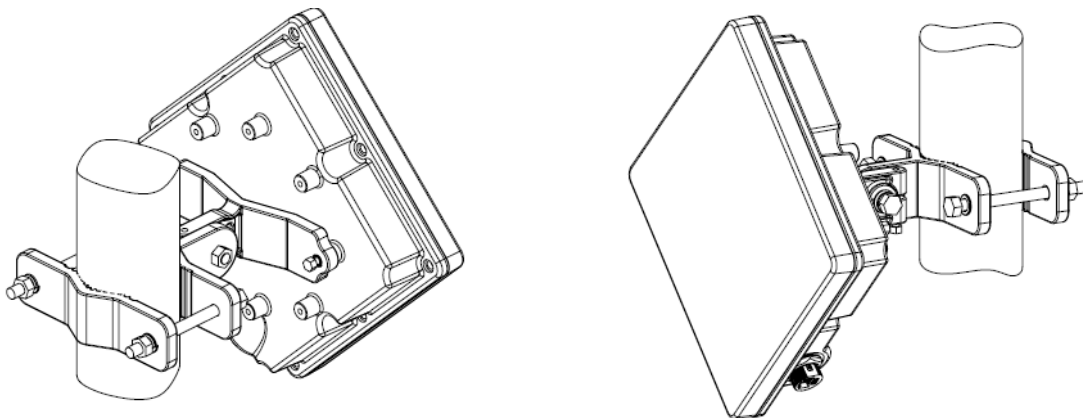


Figure 9: BreezeMAX PRO 3000 ODU Assembled on Pole

2.1.6 Connecting the Cables

2.1.6.1 Connecting the Grounding Cable

The Grounding screw (marked $\perp$) is located on the rear panel of the ODU (see Figure 5).



To connect the grounding cable:

- 1 Connect one end of a grounding cable to the grounding screw and tighten the grounding screw firmly.
- 2 Connect the other end of the grounding cable to a good ground (earth) connection.

2.1.6.2 Connecting the IDU-ODU PoE Cable



CAUTION

Use only Category 5E 4x2x24# FTP outdoor cables from an approved manufacturer. See list of approved cables in Table 14. The length of the Indoor-to-Outdoor cable should not exceed 90 meters. The length of the Indoor-to-Outdoor cable, together with the length of the Ethernet cable connecting the IDU to the data equipment, should not exceed 100 meters.



To prepare the IDU-ODU cable:

Use a crimp tool for RJ-45 connectors to prepare the wires. Insert them into the appropriate pins and use the tool to crimp the connector. Make sure to do the following:

- Remove as small a length as possible of the external jacket. Verify that the external jacket is well inside the sealing cover when connected to the unit, to ensure good sealing.
- Pull back the shield drain wire before inserting the cable into the RJ-45 connector to ensure a good connection with the connector's shield after crimping.

The IDU-ODU cable provides pin-to-pin connection on both ends.

The following figure shows the required wire pair connections.

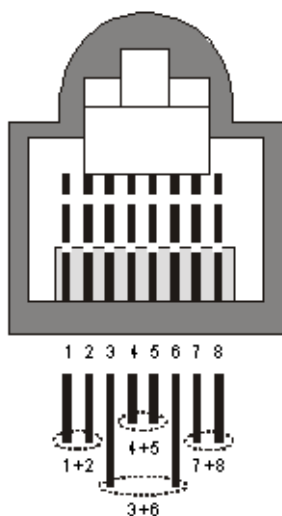


Figure 3-1: Ethernet Connector Pin Assignments

Data pairs are 1&2, 3&6.

Power pair (proprietary solution) is 4&5.

The color codes used in standard cables supplied by Alvarion are as listed in the following table:

Table 16: Cable Color Codes

Wire color	Pin
Blue	1
Blue/white	2
Orange	3
Orange/white	6
Brown	4
Brown/white	5
Green	7
Green/white	8



To connect the IDU-ODU cable:

Follow the detailed instructions supplied with the sealing cap to assemble the sealing cap onto the cable:

- 1 Strip the cable sheath.
- 2 Insert the screw nut into the housing.
- 3 Insert the seal at the back end of the housing.
- 4 Insert the cable all the way through.
- 5 Crimp the RJ-45 plug.
- 6 Insert the plug into the housing. Then secure the sealing nut in place.
- 7 Stricken the gasket on the front end of the housing.
- 8 Connect the cable to the RJ-45 connector of the ODU.
- 9 Use appropriate sealing material to protect the connection against moisture and humidity. Use high quality sealing material such as Scotch® 130C Linerless Rubber Splicing Tape from 3M to ensure IP-67 compliant protection against dust and water.

2.1.7 Installing the Power Injector IDU



NOTE

The length of the Ethernet cable connecting CPE-IDU-1D to the user's equipment, together with the length of the IDU-ODU cable, should not exceed 100 meters.

The unit can be placed on a desktop or a shelf, or it may be wall-mounted.



To install the Power Injector IDU:

- 1 It is assumed that the IDU-ODU cable is already connected to the ODU. Assemble an RJ-45 connector with a protective cover on the indoor end of the IDU-ODU cable. Refer to [Section 2.1.6.2](#) for instructions on preparing the cable.
- 2 Connect the IDU-ODU cable to the DATA & POWER OUT port.



CAUTION

Do not connect the data equipment to the DATA & POWER OUT port. The DATA & POWER OUT port supplies DC power to the ODU, and this may harm other equipment connected to it.

- 3 Connect the power cord to the unit's AC socket, located on the bottom panel. Connect the other end of the power cord to the AC mains after verifying that the unit is rated for the voltage in the country of use.

- 4 Verify that the AC LED located on the top panel is lit, indicating that the unit is supplying power to the radio port.
- 5 Proceed to configure the CPE according to [Section 3](#).

2.2 BreezeMAX Si 3000

2.2.1 Package Content

- Si CPE
- Power Adapter and Mains Power Cord
- 2 meters Ethernet Cable

2.2.2 Additional Installation Requirements

- Mains plug adapter or termination plug (if the power plug on the supplied AC power cord does not fit local power outlets).
- Portable PC with an Ethernet card.

2.2.3 Guidelines for Positioning the CPE

- The unit can be placed on a desktop or a shelf.
- It is recommended to position the unit near a window facing the direction of the BTS, with the selected antenna aimed at the direction of the BTS. Do not cover the unit. Leave free space of at least 50 cm around the unit. Do not place any object between the selected antenna and the window towards which the antenna is directed.
- Avoid metal obstacles such as metal window frames or metal film anti-glare windows in the transmission path.
- Position the unit (or the detached antenna) away from electrical equipment, including the data equipment, monitor etc., metal furniture, and moving metal objects such as metal fans or doors.

2.2.4 Connecting the Si CPE

- 1 Connect the Power cable to the power jack located on the rear panel of the Si CPE. Connect the other end of the power cord to the AC mains.

- 2 Connect the 10/100 Base-T ETHERNET connector to the data equipment.
- 3 Verify that the unit is working properly via the LED indications (see [Section 1.1.1](#)).
- 4 Proceed to configure the CPE according to [Section 3](#).

3. Configuring the CPEs Using the Configuration Application

This section describes how to configure BreezeMAX 3000 CPEs in order to connect to the base station.

3.1 Logging In

By default, the CPE enables a DHCP server and computers or network devices connected to a LAN port to automatically get an IP address from the CPE. If the CPE's DHCP server is disabled, you can set the IP address, netmask, and gateway manually using the following parameters:

IP address: 192.168.254.x ($1 \leq x \leq 253$, excluding 251)

Netmask: 255.255.255.0

Gateway: 192.168.254.251



To login:

- 1 Open a web browser and enter the default IP address `http://192.168.254.251`. [Figure 4](#) is displayed.

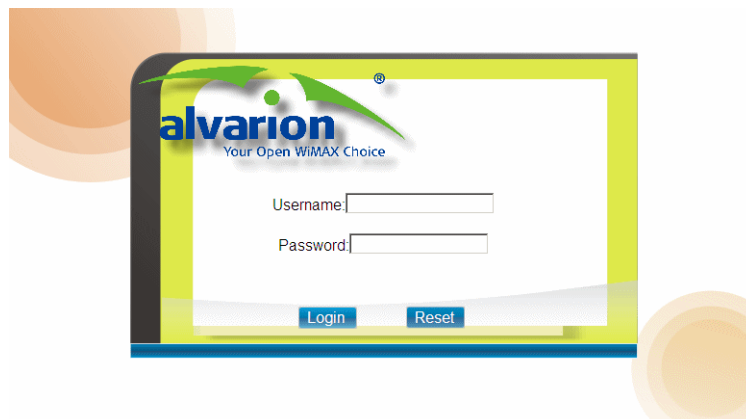


Figure 4: Login Window

- 2 Enter the username and password. The configuration server main window is displayed (see [Figure 5](#)).

BreezeMAX 3000 CPEs also support multi-level user login: Operator, Subscriber, and Debug modes are available. Each level has different permissions to access various pages for configuration.

- Subscriber:
 - » Username: subscriber
 - » Password: subscriber
- Operator:
 - » Username: Operator
 - » Password: wimax

3.2 The Main Window

Figure 5 shows an example of a typical web page. The area at the top of the page includes selection buttons for the various pages, an icon showing the status of the CPE and the Logout and Shutdown buttons. Selecting a particular page, will display tabs of the options available for that page on the left. Clicking on a tab will display the configuration/status page for the selected tab, with the applicable content (configurable parameters/options or status information) in the main area.

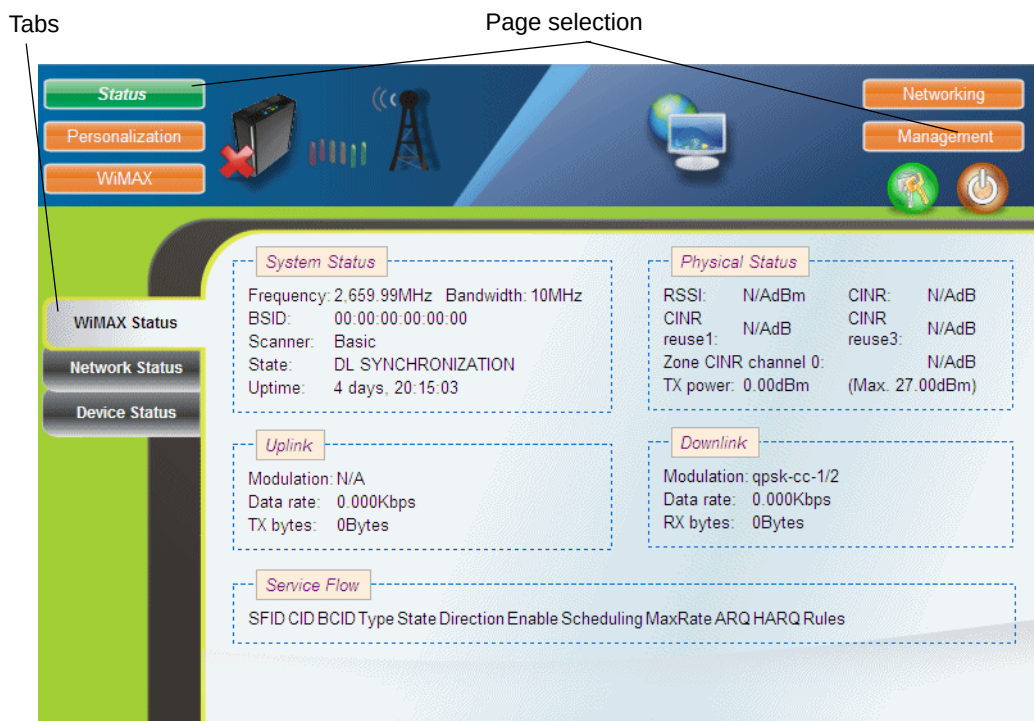


Figure 5: Example of Web Page

Table 17: Icons

Icon	Description
	CPE status: ✓ - CPE connected ✗ - CPE not connected
	Login - Click to login or logout of the system
	Shutdown - click to reboot the system or logout (see Section 3.3)

The following pages are available, depending on the user level:

- [“Configuring Status Settings” on page 24](#)
- [“Personalization of CPE Settings” on page 26](#)
- [“Configuring WiMAX Settings” on page 28](#)
- [“Configuring Networking Parameters” on page 32](#)
- [“Configuring Management Settings” on page 41](#)



NOTE

The Management section can only be accessed by users with Operator privileges.

3.3 Rebooting

Rebooting the system is sometimes necessary in order for the new configuration to take effect.



To reboot the system:

- 1 Click the Reboot icon in the top right-hand corner of the page (see [Figure 6](#)).



Figure 6: Page Showing Reboot Icon

- 2 Click **Yes** in the dialog box that is displayed to confirm.

3.4 Configuring Status Settings

Click the **Status** button to display the status of the connection.

3.4.1 WiMAX Status

The WiMAX Status displays the parameters for the WiMAX connection.

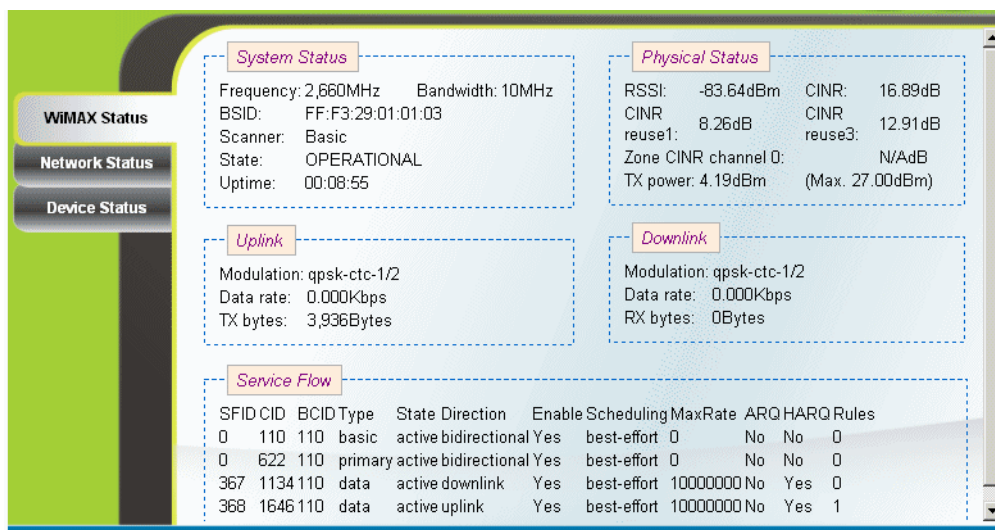


Figure 7: WiMAX Status Page

3.4.2 Network Status

The Network Status page displays the network parameters and counters.

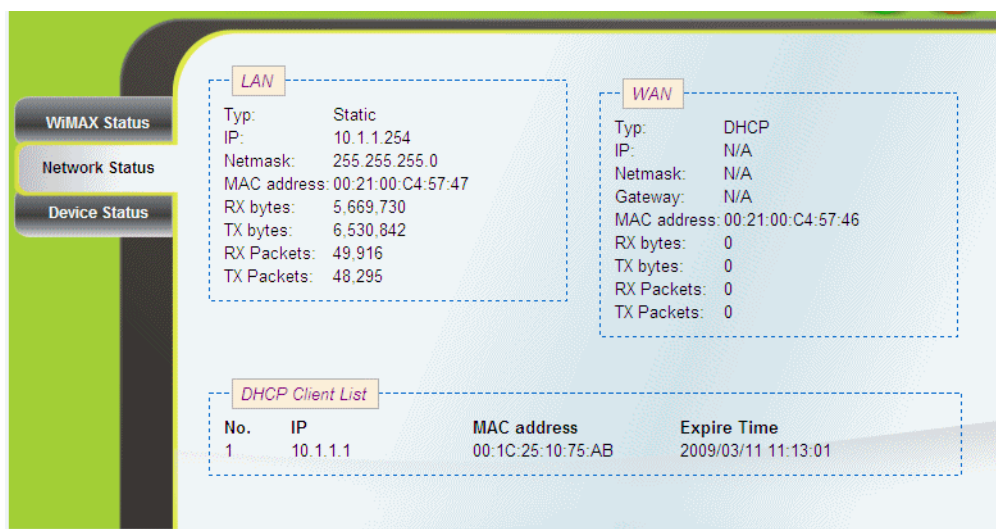


Figure 8: Network Status

3.4.3 Device Status

The Device Status page displays the device parameters.

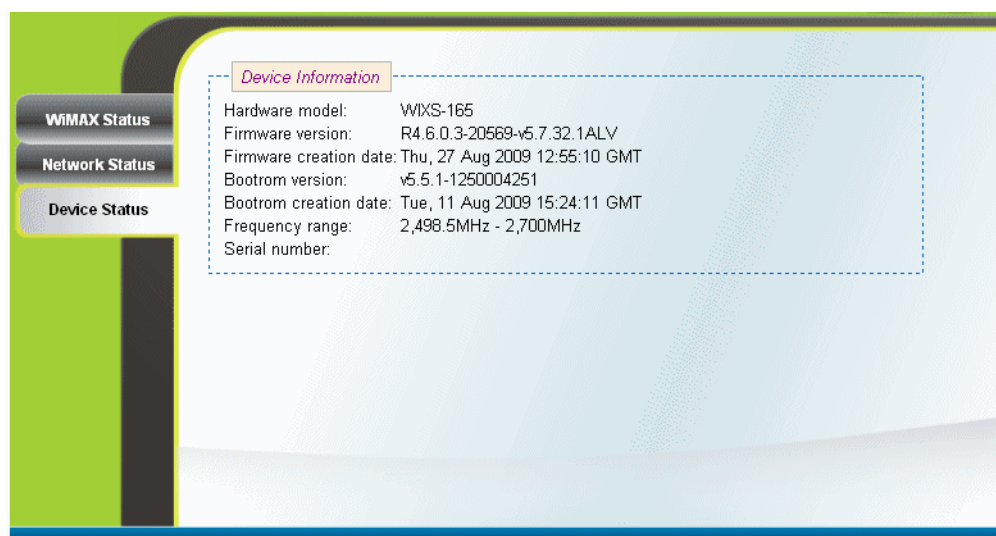


Figure 9: Device Status

3.5 Personalization of CPE Settings

Click the **Personalization** button to modify the CPE settings.

3.5.1 Account

The Account page is used to change the login password of the account. Enter and confirm the new password and click **Apply** to apply the new configuration to the CPE. The new configuration will take effect immediately.

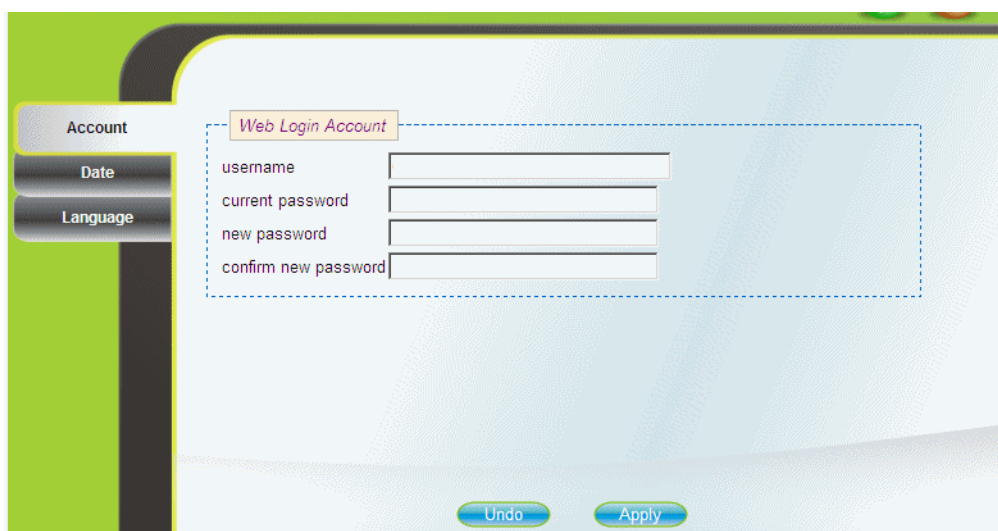
The screenshot shows the 'Account' page of the configuration application. On the left, there is a sidebar with three buttons: 'Account' (selected), 'Date', and 'Language'. The main content area is titled 'Web Login Account' and contains four input fields: 'username', 'current password', 'new password', and 'confirm new password'. At the bottom of the main area, there are two buttons: 'Undo' and 'Apply'.

Figure 10: Account Page

3.5.2 Date

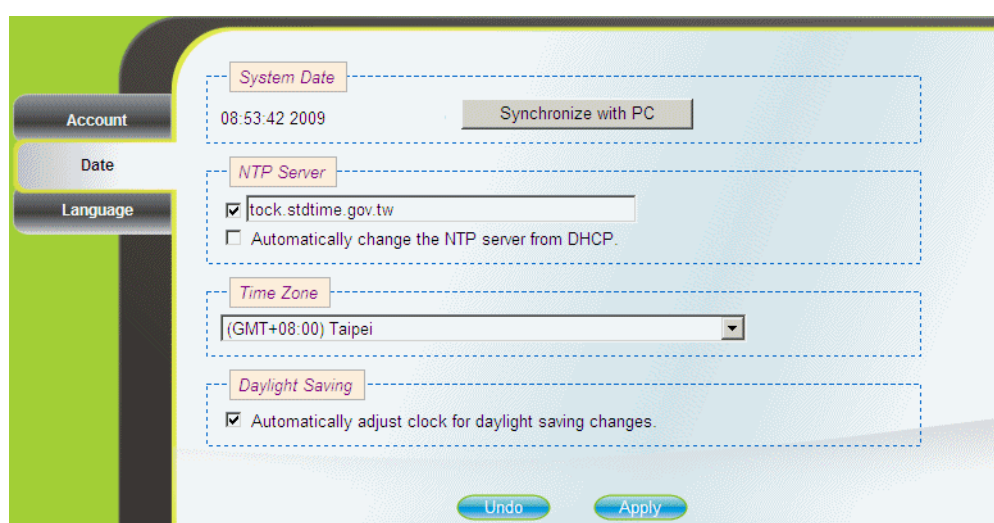
The screenshot shows the 'Date' page of the configuration application. On the left, there is a sidebar with three buttons: 'Account', 'Date' (selected), and 'Language'. The main content area is divided into four sections: 'System Date' showing '08:53:42 2009' with a 'Synchronize with PC' button; 'NTP Server' with a checked checkbox for 'stock.stdtime.gov.tw' and an unchecked checkbox for 'Automatically change the NTP server from DHCP'; 'Time Zone' with a dropdown menu showing '(GMT+08:00) Taipei'; and 'Daylight Saving' with a checked checkbox for 'Automatically adjust clock for daylight saving changes'. At the bottom of the main area, there are two buttons: 'Undo' and 'Apply'.

Figure 11: Date Page

The Date page includes the following components:

Parameter	Description
System Date	If the system date is not in the valid range of the uploaded certificate file, the CPE will not pass authentication from the base station. To synchronize the system date of a CPE with the PC connected to the LAN port, click the Synchronize with PC button.
NTP Server	The system date can be automatically updated by synchronizing the time with an NTP server assigned manually by the user or from the DHCP server.
Time Zone	Select different time zone and daylight saving options for different regions
Daylight Saving	

After configuring the fields, click **Apply** to apply the new configuration to the CPE and reboot the system in order for the new configuration to take effect.

3.5.3 Language

The Language page enables to select a language to view the web pages. Select the desired language from the list, and click **Apply** to view the pages in the selected language.

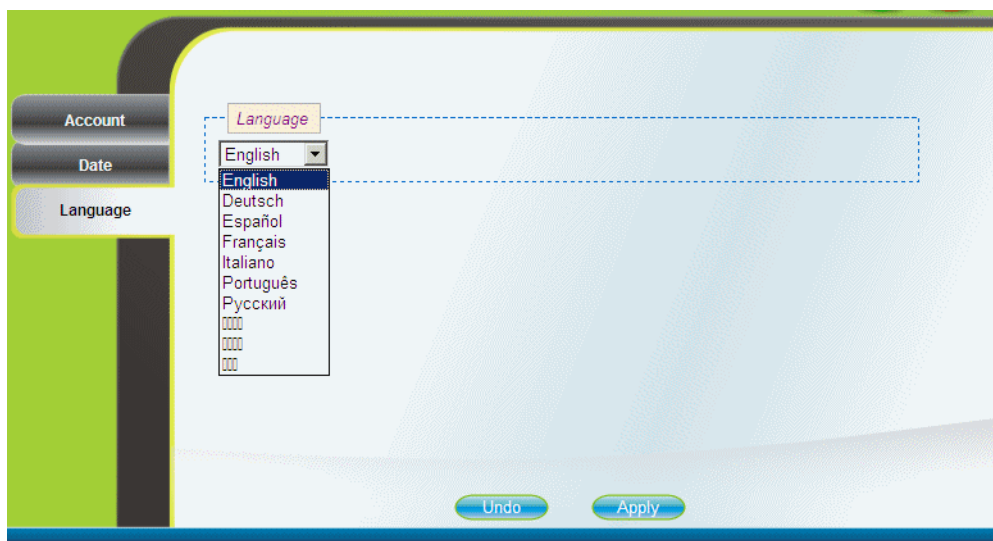


Figure 12: Language Page

3.6 Configuring WiMAX Settings

Click the **WiMAX** button to define or edit the WiMAX parameters.

3.6.1 NDS

The NDS (Network Discovery and Selection) page enables setting the network discovery.

NOTE



This page can only be accessed by users with operator privileges.

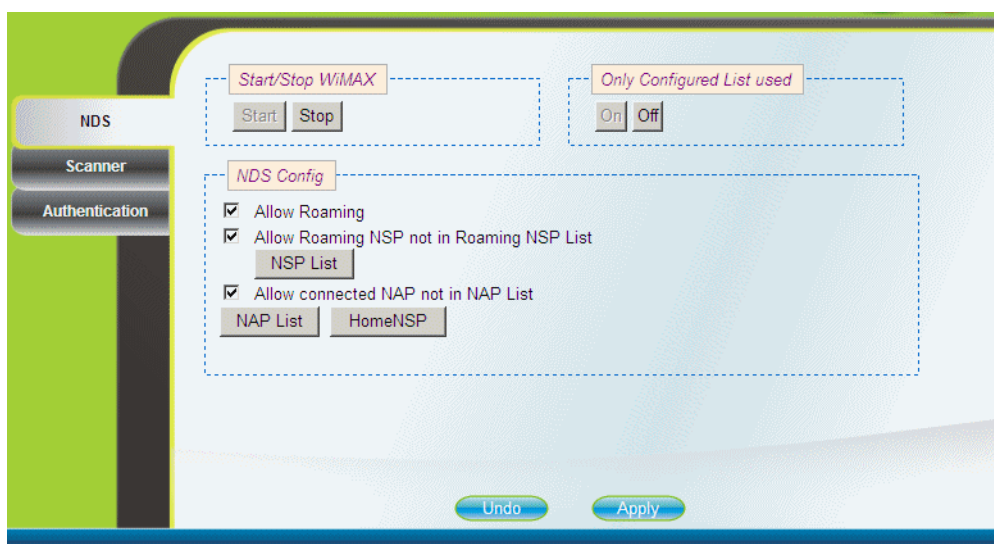


Figure 13: NDS Page

The NDS page includes the following components:

Parameter	Description
Start/Stop WiMAX	Click the Start or Stop buttons to stop or start the WiMAX connection with a BS.

Parameter	Description
NDS Config	Allow Roaming - Select this check-box to enable mobility between base stations Allow Roaming NSP not in Roaming NSP list - Select this check-box to enable mobility between NSPs (Network Service Providers) that are not included in the configured list. Leaving this check-box deselected limits the roaming to the NSPs that are configured in the NSP list. NSP List - click to edit the NSP list. Allow Connected NAP not in NSP list - Select this check-box to enable mobility between NAPs (Network Access Providers) that are not included in the configured list. Leaving this check-box deselected limits the roaming to the NAPs that are configured in the NAP list. NAP List - click to edit the NAP list HomeNSP - Click to define your basic network service provider
Only Configured List used	Click On to scan only the NSPs and NAPs configured in the lists. Click Off to enable additional scanning in the Scanner tab (see Section 3.6.2)

3.6.2 Scanner

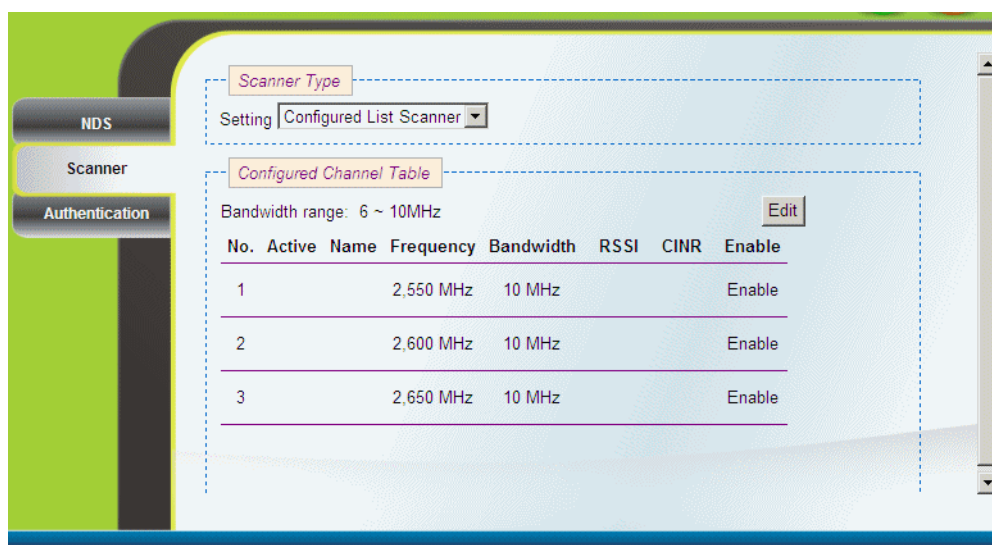


Figure 14: Scanner Page

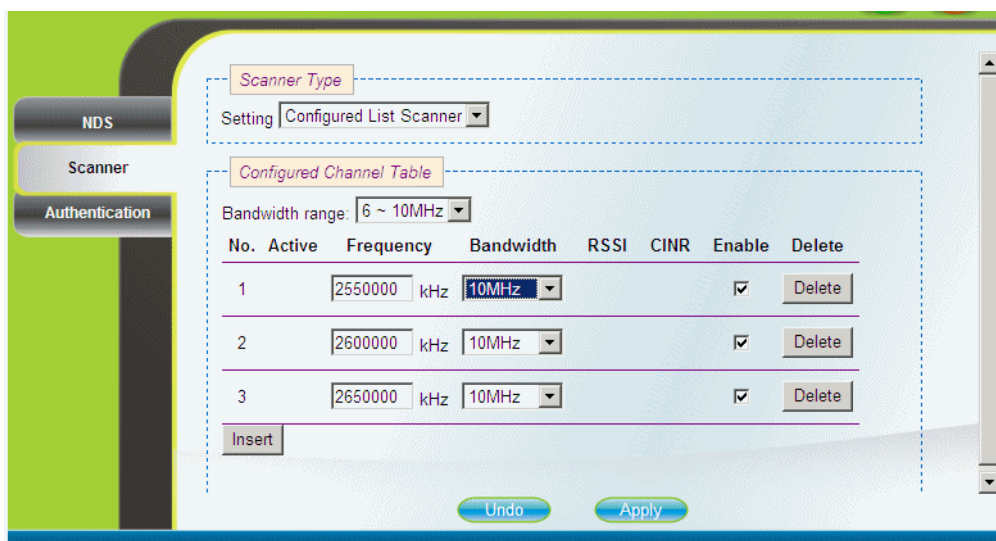


Figure 15: Scanner Page (Editing)

The Scanner page includes the following components:

Parameter	Description
Scanner Type	Enables to select the scanning method. For each option, different parameters are displayed for configuration. The following options are available: ■ Configured List Scanner - if the Off option is selected in the Only Configured List used of the NDS page (see Section 3.6.1), this is the only option available. It means that scanning will be performed on the configured list only. ■ Range - enables scanning by range of channels ■ Full - enables full scan ■ Last Used - scanning the last used channel only
Configured Channel Table	Lists all the channels that are stored in the channel table, together with the status associated with the channel used to connect the CPE to a BS. You can add, remove, and edit channels . Click Edit to modify the parameters

After changing the channel table, click **Apply** to apply the new configuration to the CPE. If the Bandwidth range of the channel table has been changed, reboot the system in order for the new configuration to take effect. If the Bandwidth range of the channel table has not been changed, use the **Start** and **Stop** buttons in the NDS tab (see [Figure 13](#)) to restart the system.

When the CPE is connected to a BS, a green check mark appears in the Active column of the linked frequency in the Channel Table section and next to the CPE

icon in the top banner. When the CPE is not connected to a BS, a red X appears next to the CPE icon in the top banner.

3.6.3 Authentication

Figure 16: Authentication Page

The Authentication page includes the following components:

Parameter	Description
Authentication Selection	
Phase 1	Select an authentication method (EAP-TLS or EAP-TTLS) to enable authentication or select None to disable authentication.
Phase 2	Select of the five available key encoding methods.
Username	If authentication is required, enter Username as agreed upon with the BS.
Password	If authentication is required, enter Password as agreed upon with the BS.
Identity	If authentication is required, enter Identity as agreed upon with the BS.
Use device Certification	Select this chekc-box if yo have a certificate file. A field is displayed where you can upload the file, and enter a Private Key Password.

Parameter	Description
Certification File Upload	
CA Certificate	Click Browse to select a certificate required for authentication, and click Upload to upload the file. Note: The only certificate format supported is PEM (Privacy Enhanced Mail, Base64 encoded DER certificate).
CA Certificate 1/2	Click View to view the contents of the certificates currently in the CPE in detail. Click Delete to delete a certificate.

After configuring the fields, click **Apply** to apply the new configuration to the CPE and reboot the system in order for the new configuration to take effect.

3.7 Configuring Networking Parameters

Click the **Networking** button to define or edit the Networking parameters.

3.7.1 Bridge/NAT Mode



NOTE

This page can only be accessed by users with operator privileges.

- Bridge Mode: To enable Bridge mode, select *Bridge Mode* from the list as shown in [Figure 17](#). Define the values and click **Apply** to activate your changes.

The screenshot shows the 'Bridge Mode' configuration page. On the left, a sidebar lists various configuration options: Bridge/NAT Mode (selected), Firewall, DHCP Server, NAT ALG, Port Forwarding, Port Trigger, and DDNS. The main area is titled 'Bridge Mode' and contains a dashed box with the following fields:

- Bridge Mode:
- IP Type:
- IP address:
- Netmask:
- Gateway:

At the bottom of the main area, there are two buttons: 'Undo' and 'Apply'.

Figure 17: Bridge Mode Page

- NAT Mode: To enable NAT mode, select *NAT Mode* from the list as shown in Figure 17.

The screenshot shows the 'NAT Mode' configuration page. On the left, a sidebar lists various configuration options: Bridge/NAT Mode (selected), Firewall, DHCP Server, NAT ALG, Port Forwarding, Port Trigger, and DDNS. The main area is titled 'NAT Mode' and contains a dashed box with the following fields:

- NAT Mode:
- WAN IP type:
- WAN IP address:
- WAN netmask:
- WAN gateway:
- LAN IP address:
- LAN netmask:
- MTU:

At the bottom of the main area, there are two buttons: 'Undo' and 'Apply'.

Figure 18: NAT Mode Page

The NAT Mode page includes the following components:

Parameter	Description
WAN IP Type	- Select <i>Static</i> from the list to manually assign the WAN IP Address, WAN Netmask and WAN Gateway - Select <i>DHCP</i> for a DHCP to automatically assign the WAN IP Address, WAN Netmask and WAN Gateway
WAN IP Address	Manually enter WAN IP address if WAN IP Type is <i>Static</i>
WAN Netmask	Manually enter WAN Netmask if WAN IP Type is <i>Static</i>
WAN Gateway	Manually enter WAN IP Gateway if WAN IP Type is <i>Static</i>
LAN IP Address	Enter LAN IP address
LAN Netmask	Enter LAN Netmask
MTU	Enter MTU (Maximum transmission unit) value - between 68 and 1500.

Click **Apply** to apply the new configuration to the CPE and reboot the system in order for the new configurations to take effect.

3.7.2 Firewall

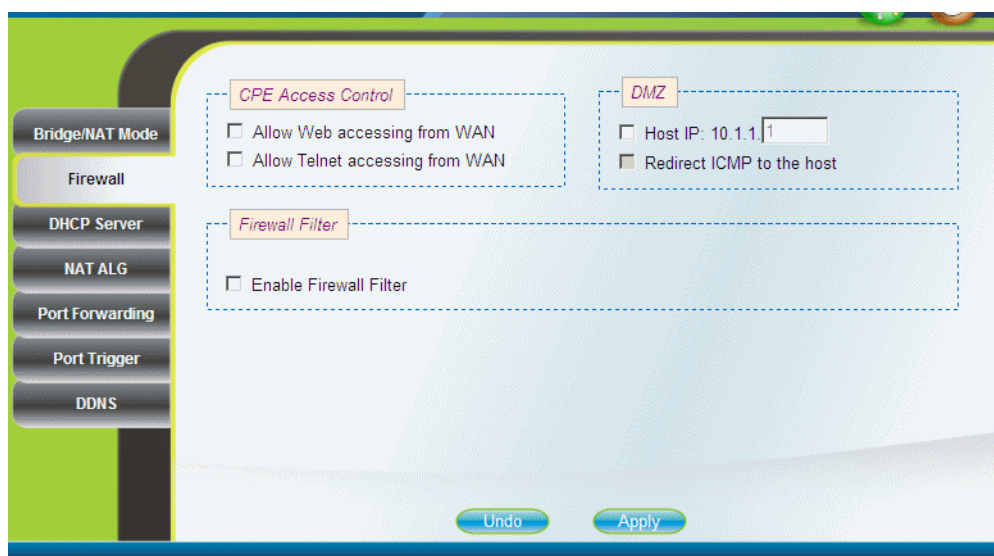


Figure 19: Firewall

The Firewall Page includes the following components:

Parameter	Description
CPE Access Control	- Check Allow Web accessing from WAN to allow web access. Uncheck to deny web access. - Check Allow Telnet accessing from WAN to allow telnet access. Uncheck to deny telnet access.
DMZ (Demilitarized Zone)	By enabling and identifying a DMZ host, an external attacker only has access to the DMZ host, rather than the entire private network at the CPE's back end. Furthermore, the redirection of ICMP (Internet Control Message Protocol) can also be enabled.
Firewall Filter	Used to filter incoming network traffic based on MAC, IP, protocol, TCP/UDP port and interface (Figure 20).

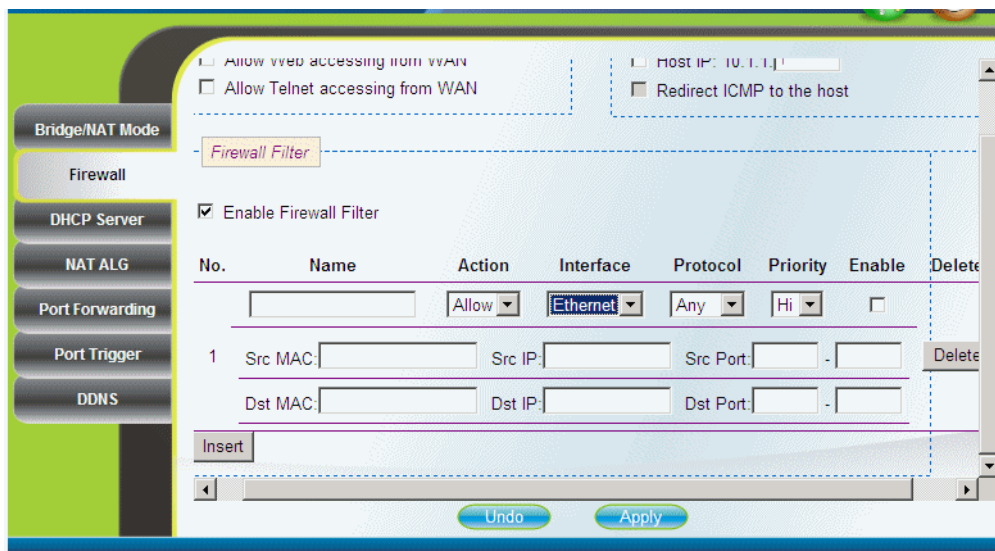


Figure 20: Firewall Filter

3.7.3 DHCP Server



NOTE

DHCP server is only applicable when the CPE is in NAT mode.

If DHCP server is enabled in this page, the DHCP server will automatically start up when the CPE is powered on. The DHCP Server page displays the previous current configuration of the DHCP server, unless the configuration was modified without reset.

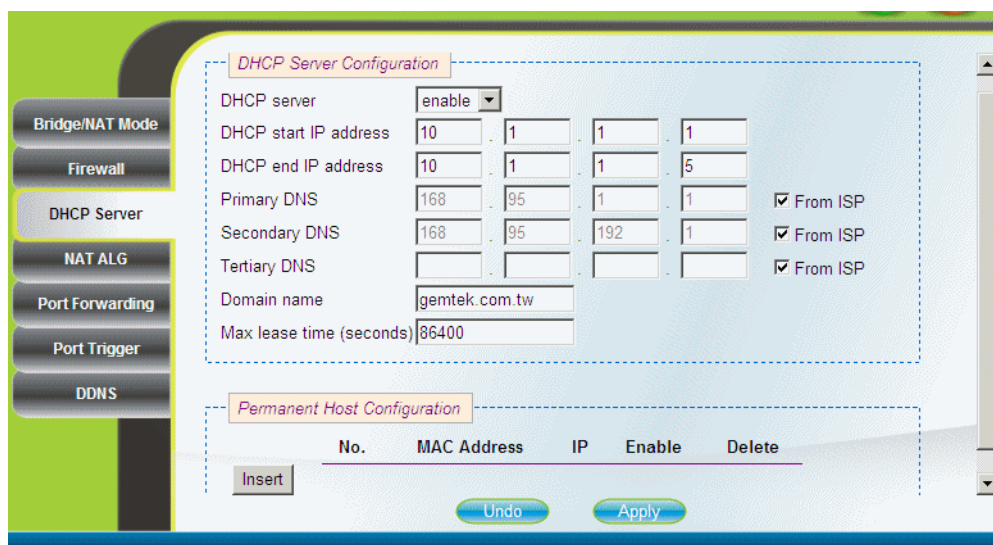


Figure 21: DHCP Server Enabled

The DHCP Server page includes the following components.

Parameter	Description
DHCP Server Configuration	
DHCP Server	Possible values: ☒ Enable - enables DHCP Server ☐ Disable - disables DHCP Server
DHCP Start IP Address	Starting IP address of DHCP server
DHCP End IP Address	Ending IP address of DHCP server
Primary DNS	Primary DNS Server address.
Secondary DNS	Secondary DNS Server address
Domain name	Domain name. Required field
Max lease time (seconds)	Maximum lease time in seconds. Possible values: 1 to 99999999
Permanent Host Configuration	
	A specific IP address can be assigned to a specific MAC address. To enter values click Insert

Click **Apply** to apply the new configuration to the CPE and reboot the system for the new configurations to take effect.

3.7.4 NAT ALG

Select or deselect the check-box to enable or disable BSID authorization of SIP algorithm (Figure 22). When enabled, the BS ID is added to the SIP (Session Initiation Protocol) messages that passes through the CPE on uplink (e.g. SIP Request messages coming from a soft phone situated on LAN).



NOTE

- NAT ALG is only applicable when the CPE is in NAT mode (see “Bridge/NAT Mode” on page 32).
- This page can only be accessed by users with operator privileges.

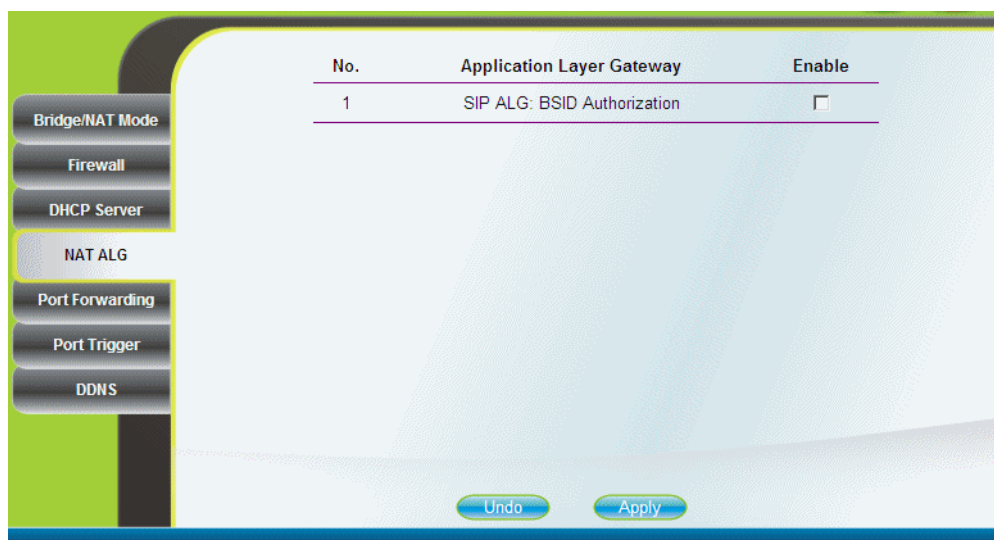


Figure 22: NAT ALG Page

Click **Apply** to apply the new configuration to the CPE and reboot the system for the new configurations to take effect.

3.7.5 Port Forwarding

Port forwarding redirects incoming network traffic from a pre-defined WAN port range to a pre-defined LAN IP Address and LAN port range.



NOTE

- Port forwarding is only applicable when the CPE is in NAT mode (see “Bridge/NAT Mode” on page 32).

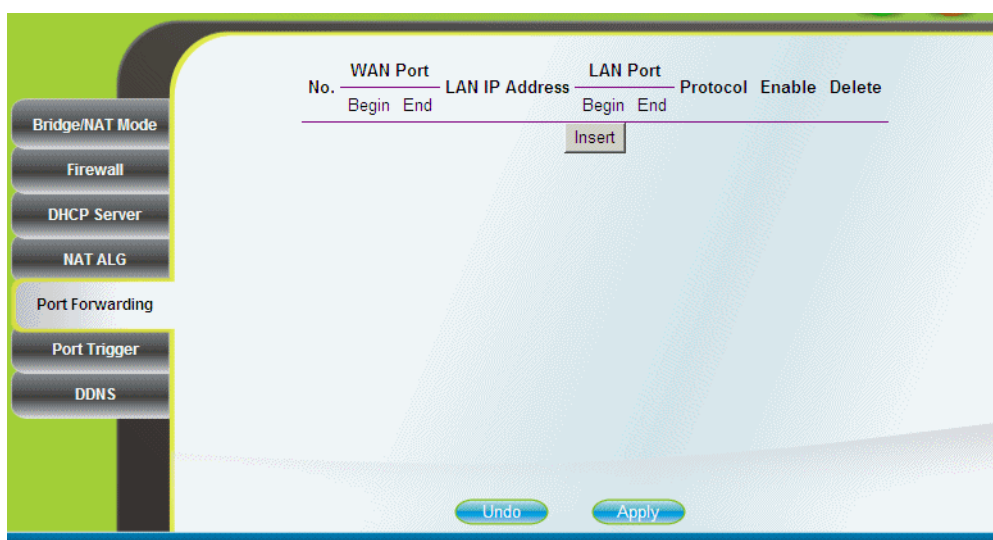


Figure 23: Port Forwarding

The page includes the following components:

Parameter	Description
WAN Port	
No.	The number of the port forwarding rule
Begin	The beginning of the WAN port range
End	The end of the WAN port range
LAN IP Address	LAN IP address
LAN Port	
Begin	The beginning of the LAN port range
End	The end of the LAN port range
Protocol	Communication protocol
Enable	Check to enable the port forwarding rule Clear to disable the port forwarding rule
Delete	Click to delete the rule
Insert	Click to add a port forwarding rule

After editing or adding port forwarding rules, click **Apply** to apply the new configuration to the CPE and reboot the system in order for the new configurations to take effect.

3.7.6 Port Trigger

Port trigger dynamically opens port forwarding from a pre-defined WAN forwarding port range to a pre-defined LAN forwarding port range when a client on the local network makes an outgoing connection to a predetermined Trigger Port range.



NOTE

Trigger Port is only applicable when the CPE is in NAT mode (see [“Bridge/NAT Mode” on page 32](#)).

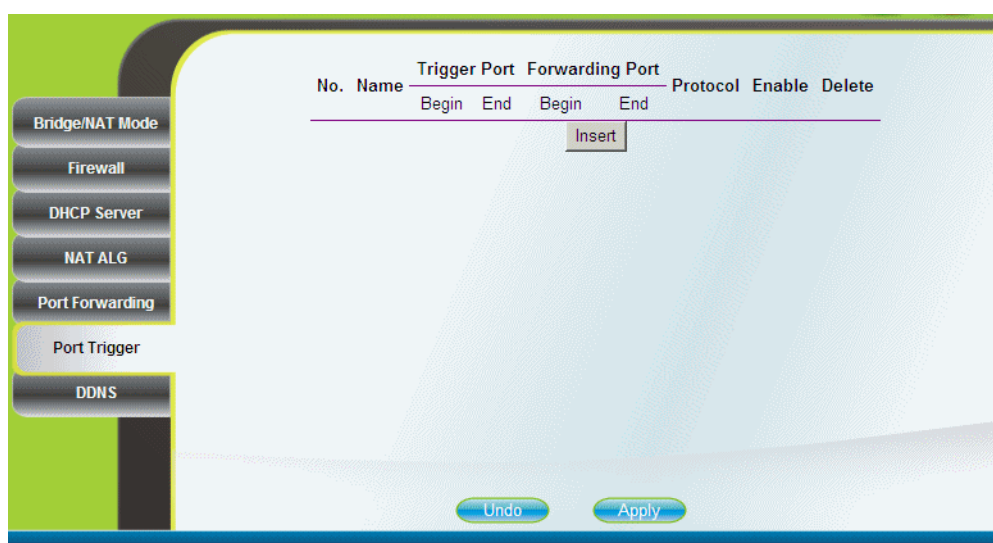


Figure 24: Port Trigger Page

The Trigger Port page includes the following components

Parameter	Description
No.	The number of port trigger mapping
Name	The ACS server login to CPE
WAN Port	
Begin	The beginning of the WAN forwarding port range
End	The end of the WAN forwarding port range
LAN Port	
Begin	The beginning of the LAN forwarding port range
End	The end of the LAN forwarding port range

Parameter	Description
Protocol	Communication protocol
Enable	Check to enable the port trigger mapping Clear to disable the port trigger mapping
Delete	Click to delete the port trigger mapping
Insert	Click to add a port trigger

After editing or adding port triggers, click **Apply** to apply the new configuration to the CPE and reboot the system in order for the new configurations to take effect.

3.7.7 DDNS

To enable DDNS Dynamic DNS (Domain Name System), you should register with at least one service provider.

Figure 25: DDNS Enabled

The DDNS page includes the following components:

Parameter	Description
Enable DDNS	Check to enable DDNS
Service Provider	Click Sign Up and follow the procedure to register with a service provider
Hostname	Enter the hostname registered with the service provider
Username	Enter the username registered with the service provider
Password	Enter the password registered with the service provider

Click **Apply** to save the new configuration to the CPE and reboot the system. Once the system has rebooted, the CPE will be able to notify the selected domain name server to change the active DNS configuration of its configured hostnames and addresses in real time by using the Internet Protocol Suite.

3.8 Configuring Management Settings



NOTE

- The Management section can only be accessed by users with administrator privileges.
- Some of the pages are applicable to BreezeMAX Pro 3000 only.

Click the **Management** button to manage the system.

3.8.1 TR-069

Figure 26: TR-069 Page

The TR-069 page includes the following components:

Parameter	Description
TR-069 Configuration	
TR-069 Active Flag	If enabled, the TR-069 client automatically starts up when the CPE is operational.

Parameter	Description
ACS Server URL	The URL used by TR-069 client to connect to the ACS server.
ACS Username	The username used by TR-069 client to connect to the ACS server.
ACS Password	The password used by TR-069 client to connect to the ACS server.
Inform Enable	When enabled, TR-069 client periodically queries the ACS server according to the time defined in the Inform Interval.
Inform Interval (3600 -86400 Seconds)	The time period when the TR-069 client periodically queries the ACS server. Value can range between 3600 and 86400 seconds
Connection Request Username (The ACS server login to CPE)	The username to connect to the CPE and get/set parameters via connection request mechanism.
Connection Request Password (The ACS server login to CPE)	The password to connect to the CPE and get/set parameters via connection request mechanism.
 NOTE: All of the above parameters will be overwritten if Option-43 is activated. However, the parameters changed by Option-43 are not saved in the CPE and parameters defined above are restored when the CPE reboots.	
TR-069 Certificate File Upload	
TR-069 Certificate	Browse to select an TR-069 certificate required for HTTPS protocol and click Upload to upload the certificate.
 NOTE: The only certificate format supported is PEM (Privacy Enhanced Mail, Base64 encoded DER certificate). Confirm the format before uploading.	

Click **Apply** to save the new configuration to the CPE. If only the *Inform Enable* and/or *Inform Interval* parameters have been changed, the change will take effect during the next inform interval. If other parameters have been changed, the system must be rebooted for the new configurations to take effect.

3.8.2 Buzzer

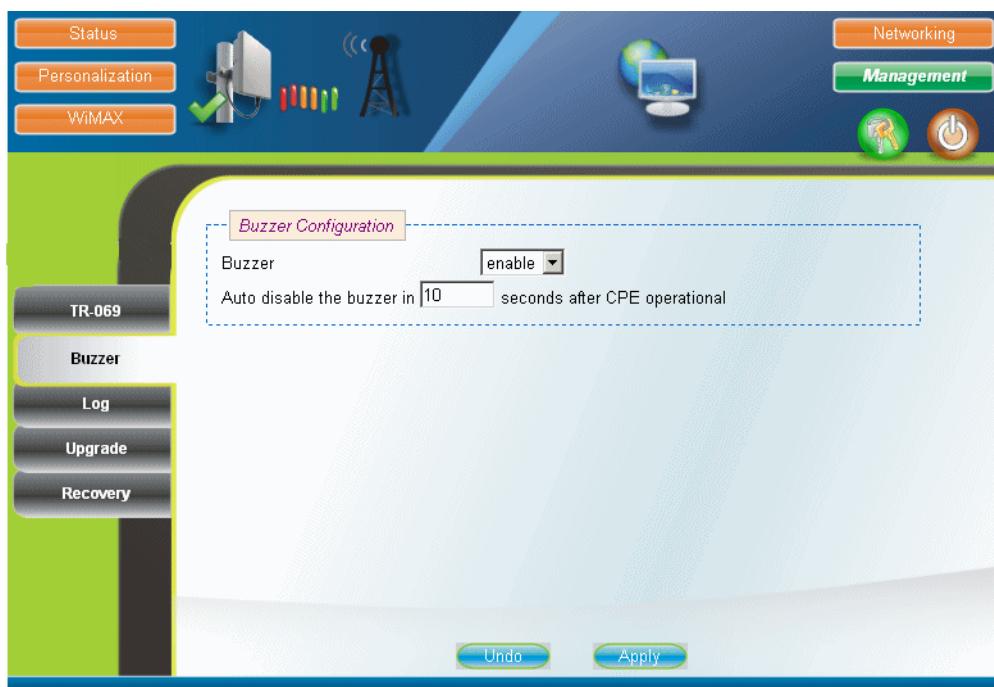


Figure 27: Buzzer Configuration Page

NOTE



This page is applicable for BreezeMAX PRO 3000 only.

The Buzzer page enables to configure the buzzer behavior, and includes the following components:

Parameter	Description
Buzzer	Enable, Demo or Disable
Auto Disable buzzer in X seconds after CPE is operational	Insert the duration (in seconds) after which the buzzer will stop upon CPE connection.

The CPE automatically selects a different sound format per CPE status. The following table lists the rules. The buzzer automatically turns off within 1800 seconds after the CPE is connected with a BS. If the CPE disconnects from the BS, the buzzer automatically turns on.

Status	Buzzer Sound Format
Synchronization	1 beep and 1 second silence
Ranging	2 beeps in a different tone and 1 second silence
DHCP negotiation	3 beeps in a different tone and 1 second silence
Operational, CINR < 8	2 beeps in the same tone and 1 second silence
Operational, 8 ≤ CINR < 15	3 beeps in the same tone and 1 second silence
Operational, 15 ≤ CINR < 24	4 beeps in the same tone and 1 second silence
Operational, 24 ≤ CINR	5 beeps in the same tone and 1 second silence

If the buzzer is set to Demo mode, all kinds of buzzer sound formats are repeated 3 times by turns.

3.8.3 Log

The Log page displays the system message log.

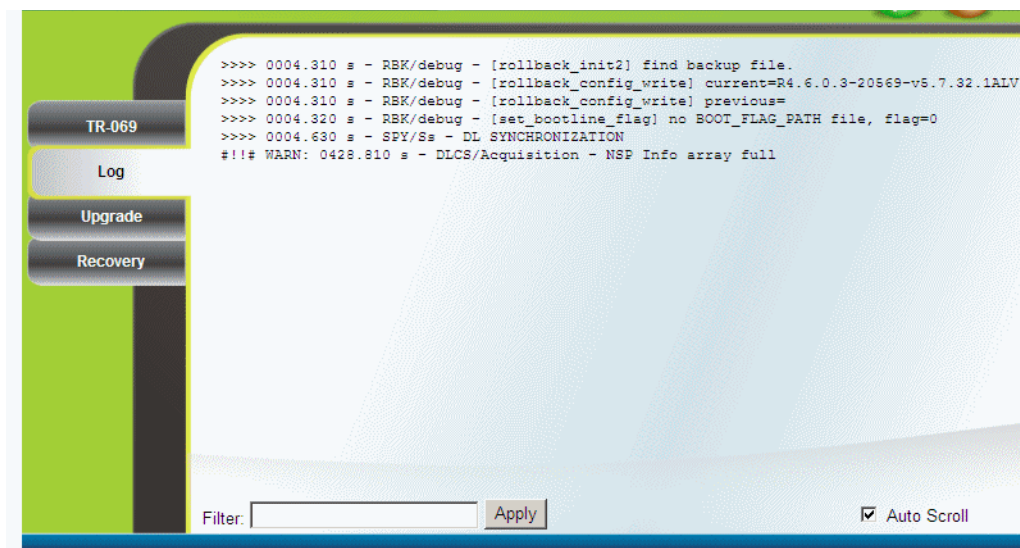


Figure 28: Log Page

The Log page includes the following components:

Parameter	Description
Filter	Filter out specific text. To filter, enter + or - and the module to filter
Auto scroll	Select to display the last log rows

3.8.4 Upgrade

Figure 29: Upgrade Page

The Upgrade page include the following components:

Parameter	Description
Web Upgrade	
Firmware image file	Click Browse to select the firmware file and click Upload to upload the file to the CPE. After the firmware file is uploaded a summary window is displayed. Click Apply to confirm and upgrade the firmware. The upgrade takes several minutes and when completed, the CPE automatically reboots.
FTP Upgrade	
FTP Server IP address	Enter FTP server IP address.
FTP username	Enter FTP server username.
FTP password	Enter FTP server password.

Parameter	Description
Firmware file path	Enter the file path.
Firmware file name	Enter the file name and click Upload . The CPE downloads the firmware from the FTP server and upgrades the version. Once the upgrade is completed, the CPE automatically reboots.
TFTP Upgrade	
TFTP server IP address	Enter TFTP serve IP address
Firmware file name	Enter the file name and click Upload . The CPE downloads the firmware from the TFTP server and upgrades the version. The upgrade takes several minutes and when completed, the CPE automatically reboots.

3.8.5 Recovery



NOTE

The recovery page can only be accessed by users with administrator privileges

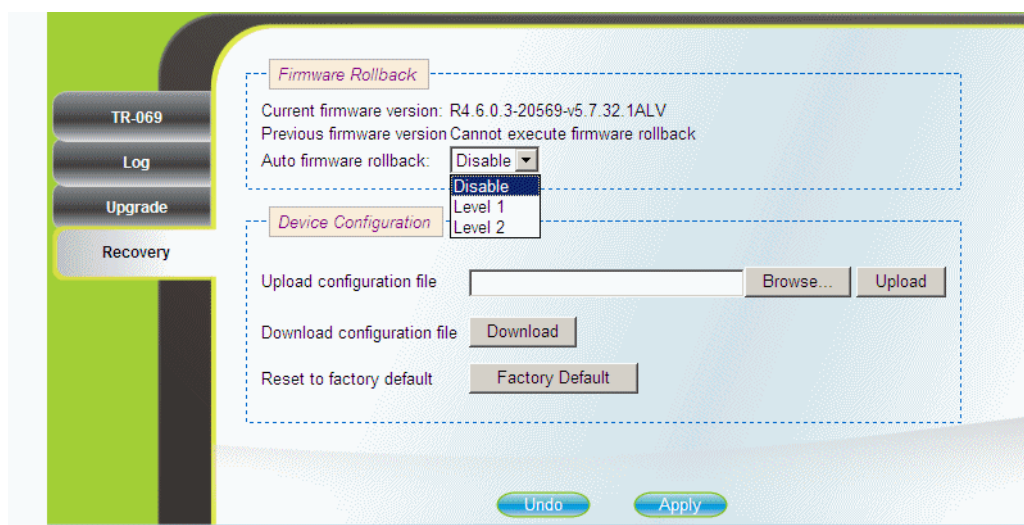


Figure 30: Recovery Page

The Recovery page includes the following components:

Parameter	Description
Firmware rollback	
Current firmware version	Displays the current firmware version.

Parameter	Description
Previous firmware version	Displays the previous firmware version. Click Rollback to revert to the previous version.
Auto firmware rollback	Allows automatic rollback. Select Disable or ■ Level 1 - The duration of firmware validation test in seconds ■ Level 2 - Failure count in firmware validation test
Device Configuration	
Upload configuration file	Configuration files such as <i>.configdb</i> and <i>ddns.conf</i> , can be uploaded from the PC to the CPE.
Download configuration file	Configuration files such as <i>.configdb</i> and <i>ddns.conf</i> , can be downloaded from the CPE to the PC.
Reset to factory default	Click Factory Default to restore the configuration to factory default setting.

4. Creating a Default Configuration File

This section explains how to create a default Configuration (.CONF) file for automatic CPE configuration. This file contains all the parameters you want to apply to a series of CPEs. When applying this file to CPEs, all the parameters will automatically be configured with the values from the file.

When the file is complete, it should be copied onto a CDROM and supplied with the unit.

Follow the procedure below to create this file.



To generate a CONF file:

- 1 Create a new directory and copy the following files into it:
 - » *AutoGenDefaultFileToolV#.exe*
 - » *CPEAutoConfigToolV#.exe*
- 2 Choose a CPE which will be considered the “Golden” CPE - the one from which to create the default CONF file.
- 3 Set the control PC to DHCP mode (automatic mode) in LAN.
- 4 Power on CPE and wait until the RED LED is blinking.
- 5 Upgrade the CPE Firmware to the target version.
- 6 Run “Reset to factory default” function:
 - a Log in as Operator
 - b Click **Management** and select the **Recovery** tab.
 - c Click **Factory Default** to restore the configuration to factory default setting.
- 7 Configure the settings of the CPE to be the default for other CPEs.
- 8 To save this configuration as a default file, run the automatic tool *AutoGenDefaultFileToolV#.exe* from the directory you saved in Step 1; The following window is displayed:



Figure 31: Convert to Default ConfigFile Window

- 9 Enter a Username, Password and the Version of the default configuration (as appears in the Factory default version of the Recovery page; see [Figure 30](#)); Click **Login**; A status bar appears displaying the process of ConfigFile generation.

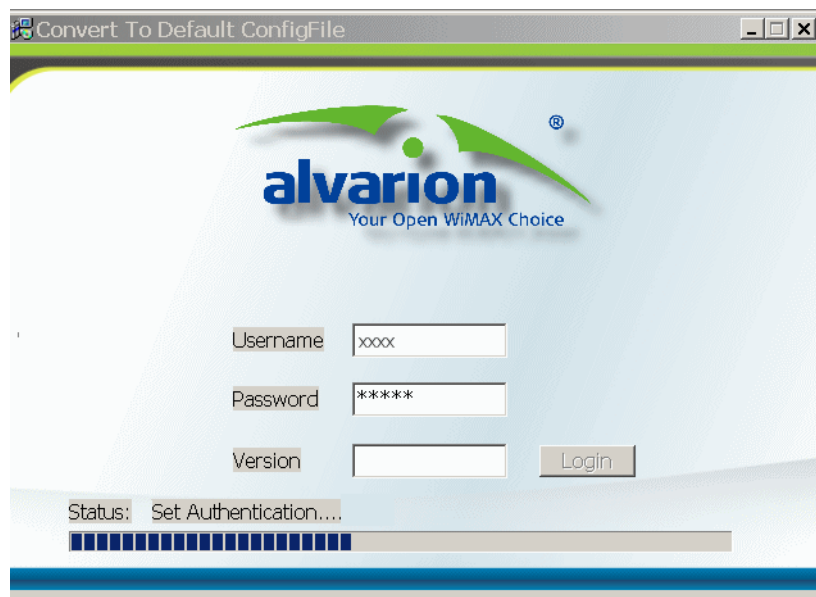


Figure 32: Status bar of ConfigFile Generation

- 10 Authentication Selection window is displayed (Figure 33). Enter a username, password, and identity. These components are not drawn from the “Golden” CPE into the target CPEs as other authentication information, therefore you set these authentication rule values at this stage.

NOTE



You can input some rules for the *Username* field: Place the cursor on the Username field; A yellow box is displayed showing the control formats for username (see Figure 33). Use the formats as required. For example, if you want to define the username as *CPEMACAddress@wimax.com*, use the syntax: “<MAC>@wimax.com”.

If the MAC address of the target CPE is 00:11:22:33:44:55, its username at the Authentication page (see Figure 16) will be 001122334455@wimax.com.

Figure 33: Authentication Selection Window

- 11 Click **Set**; A Save As window is displayed.
- 12 Save the *.CONF file in the same directory as in Step 1.
- 13 If necessary, create a CDROM to be supplied with the CPE, containing the above files (see “Creating a CDROM for the Subscriber” on page 51). These files will be used to configure other CPEs with the generated default file.

5. Creating a CDROM for the Subscriber

The CPE should be supplied to the subscriber either pre-configured or not configured. If the unit provided to the subscriber is not pre-configured, a CDROM should be supplied with the unit containing the items described in this section.



To create a CD for a non-configured unit:

Burn the following items onto the CDROM to be supplied to the subscriber:

- *CPEAutoConfigToolV#.exe* - Automatic tool for applying the default settings to other CPEs.
- *DefConfigFile.CONF* - the file containing default settings, created as described in [“Creating a Default Configuration File” on page 48](#). Make sure it is in the same folder as the Auto-configuration tool.
- SW version according to the HW provided - copy the SW versions from: CD for operator\SW versions.
- Quick Installation Guide (QIG) according to HW - copy from: CD for operator\CD for operator\QIG.
- BreezeMAX 3000 Product Manual for the End-User

Make sure you do not copy any other document to the user CD.

6. Glossary

Term	Description
BSID	Base Station ID
DDNS	Dynamic DNS (Domain Name System)
DMZ	Demilitarized Zone
ICMP	Internet Control Message Protocol
ISP	Internet Service Provider
MTU	Maximum transmission unit
NAP	Network Access Providers
NDS	Network Discovery and Selection
NSP	Network Service Provider
SIP	Session Initiation Protocol